IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A demineralized bone matrix composition comprising: demineralized bone matrix; at least one non-glycerol stabilizing means; wherein the composition retains at least 50% of its original osteoinductivity after one year at room temperature,

wherein the non-glycerol stabilizing means is ~~selected from the group consisting of deuterated water (D_2O), protease inhibitors,~~ non-glycerol polyols, ~~polysaccharides, and acids,~~ and

wherein the non-glycerol polyol is selected from the group consisting of polyvinyl alcohols, polyethylene glycols, erythritol, hydrogenated starch hydrolysates, isomalt, lactitol, maltitol, mannitol, sorbitol, and xylitol.

2. (Original) The composition of claim 1, wherein the composition does not include glycerol.

3. (Original) The composition of claim 1, wherein the demineralized bone matrix is in the form selected from the group consisting fibers, plates, particles, threads, and gels.

4. (Cancelled).

5. (Original) The composition of claim 1 further comprising water.

6. (Original) The composition of claim 1 further comprising hyaluronic acid.

7. (Previously Presented) The composition of claim 1, wherein the non-glycerol stabilizing means is a protease inhibitor or combination of protease inhibitors.

8. (Original) The composition of claim 7, wherein the protease inhibitor is selected from the group consisting of aprotinin, 4-(2-aminoethyl)benzenesulfonyl fluoride (AEBSF), amastatin-HCl, alpha1-antichymotrypsin, antithrombin III, alpha1-antitrypsin, 4-aminophenylmethane sulfonyl-fluoride (APMSF), arphamenine A, arphamenine B, E-64, bestatin, CA-074, CA-074-Me, calpain inhibitor I, calpain inhibitor II, cathepsin inhibitor, chymostatin, diisopropylfluorophosphate (DFP), dipeptidylpeptidase IV inhibitor, diprotin A, E-64c, E-64d, E-64, ebelactone A, ebelactone B, EGTA, elastatinal, foroxymithine, hirudin, leuhistin, leupeptin, alpha2-macroglobulin, phenylmethylsulfonyl fluoride (PMSF), pepstatin A, phebestin, 1,10-phenanthroline, phosphoramidon, chymostatin, benzamidine HCl, antipain, epsilon-aminocaproic acid, N-ethylmaleimide, trypsin inhibitor, 1-chloro-3-tosylamido-7-amino-2-heptanone (TLCK), 1-chloro-3-tosylamido-4-phenyl-2-butanone (TPCK), trypsin inhibitor, sodium EDTA, and combinations thereof.

9. (Cancelled).

10. (Original) The composition of claim 1, wherein the pH of the composition is below 7.

11. (Original) The composition of claim 1, wherein the pH of the composition is below 5.

12. (Original) The composition of claim 1, wherein the pH of the composition is below 4.

13. (Original) The composition of claim 1, wherein the pH of the composition is below 2.

14. (Original) The composition of claim 1, wherein the pH of the composition is between approximately 3 and 4.

15. (Original) The composition of claim 1, wherein the pH of the composition is between approximately 4 and 5.

16. (Original) The composition of claim 1, wherein the composition retains at least 75% of its original osteoinductivity after 1 year at room temperature.

17. (Original) The composition of claim 1, wherein the composition retains at least 90% of its original osteoinductivity after 1 year at room temperature.

18. (Original) The composition of claim 1, wherein the composition retains at least 75% of its original osteoinductivity after 2 years at room temperature.

19. (Original) The composition of claim 1, wherein the composition retains at least 90% of its original osteoinductivity after 2 years at room temperature.

20. (Original) The composition of claim 1 further comprising at least one exogenous osteoinductive or osteogenic agent.

21. (Previously Presented) The composition of claim 1 further comprising: a non-glycerol carrier.

22. (Cancelled).

23. (Original) The composition of claim 21, wherein the carrier is selected from the group consisting of hyaluronic acid, collagens, lipids, polymers, proteins, and water.

24. (Original) The composition of claim 21, wherein the carrier is selected from the group consisting of hyaluronic acid, collagens, lipids, polymers, and water.

25. (Original) The composition of claim 21, wherein the stabilizing means is selected from the group consisting of deuterated water (D_2O), protease inhibitors, non-glycerol polyols, sorbitol, and acids.

26. (Cancelled).

27. (Previously Presented) The composition of claim 1 further comprising: an exogenous destabilizing agent.

28. (Original) The composition of claim 27, wherein the exogenous destabilizing agent is a protease.

29. (Original) The composition of claim 27, wherein the exogenous destabilizing agent is a tissue comprising a protease.

Claims 30-34 (Cancelled).